Minos Crate Wattage (Heat Load)

Worst Case (Near Detector)

Voltage	Amps / Pin	Pins / Slot	Watts / Slot
5	1.25	6	37.50
3.3	1.25	10	41.25
12	1.25	1	15.00
12	1.25	1	15.00
		TOTAL per Slot	108.75
Worst Case Number of Slots =			14.00
		TOTAL per Crate	1522.50

Worst Case CDF 9U Board Load (80 W)

Watts per Slot =	80.00
Number of Slots =	14.00
	1120.00

Estimated Load from CDF Data

	Watts / Board	SubTotal
12 Boards similar to the SMXR	30	360
2 Boards similar to the MVME162	35	70
	TOTAL	430
	Plus 25% ->	537.5

CDF Test Data Summary

Flow through the 4U baffle at the bottom, Fan Pack, Filter Plenum, and Crate
For a static pressure of 0.18 inches of water

		CFM
Flow at crate exhaust =		790
Flow out through other faces of the crate =		500
	TOTAL FLOW	1290

Reasoning:

The flow through the inlet of the full configuration (baffle, fan pack, filter plenum and crate) at the measured static pressure matches up with the flow characteristics measured in the Fan Pack Only tests and the characteristics specified by the fan vendor for the individual fans. The tests indicate that 125 CFM was lost through leaks in the filter plenum. This flow did not provide cooling of the load boards. The 500 CFM that was thought to have been lost through leaks in the crate will be assumed to have provided cooling to the cards.

Heat Load in the Crate

TOTAL Wattage =	1695
Maximum Delta Temp, degC =	11
Average Delta Temp, degC =	6

Results From Blower and Fan Selection Nomograph

Allowable Avg. Temp. Rise, degC = 6.00

Case	Watts	Needed CFM
Worst Case Minos	1522.5	558.25
Worst Case CDF Load	1120.00	410.67
Estimated Minos	430	157.67
CDF Test Wattage Using Average delta T (6 degC)	1695	621.50

Compared to CDF test results the nomograph estimated a flow one half of what was needed to maintain an average delta T of 6 degC.

Doubling the Nomograph Result

	Watts	Needed CFM
Worst Case Minos	1522.5	1116.50
Worst Case CDF Load	1120.00	821.33
Estimated Minos	430	315.33

Etri Fans, 110 VAC Input

CFM	In. H2O
	0.1
1875	0.13
1750	0.16
1610	0.36
1075	0.51
600	0.61
395	0.82
0